Dandelion Compounds Quercetin and Caffeic Acid Reduce Inflammation, Study Finds

05/15/2026 // Coco Somers // **260** Views

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A new study found two compounds in dandelion -- quercetin and caffeic acid -- reduce inflammation at the cellular level, according to an article on mindbodygreen.com [1]. Researchers screened 56 bioactive compounds from the plant and identified the two as the most effective at lowering markers of immune activation. When combined in equal parts, the compounds produced a stronger anti-inflammatory effect than either substance alone, the researchers reported.

The study focused on the AGE-RAGE pathway, a biological chain reaction linked to aging and the consumption of processed foods. Chronic activation of this pathway is associated with metabolic disease, cardiovascular problems, and accelerated aging. The findings offer a molecular basis for the traditional use of dandelion as an anti-inflammatory remedy.

Study Methodology

The researchers used a multi-step approach to evaluate the anti-inflammatory potential of dandelion compounds, according to the study. They first analyzed a database of 56 bioactive compounds found in the plant, then applied computer modeling to predict which molecules were most likely to interact with inflammatory pathways. The top candidates -- quercetin and caffeic acid -- were tested in live cell experiments using human immune cells.

Cells were exposed to inflammatory triggers and then treated with quercetin, caffeic acid, and various combinations of the two, the report stated. The researchers measured the levels

of two key inflammation markers, TNF-? and IL-1?, both of which are well-established indicators of immune system activation.

Key Results

Both quercetin and caffeic acid individually reduced the production of TNF-? and IL-1? in treated cells, according to the researchers. When the compounds were combined in equal proportions, the reduction in inflammation markers was greater than the sum of their individual effects, indicating a synergistic interaction. The two molecules appear to act on different points along the same inflammatory cascade, the study suggested.

This synergy suggests that consuming dandelion in its whole form -- which contains both compounds -- may offer a more effective anti-inflammatory effect than isolated supplements, the authors noted. The results align with earlier research showing that whole-plant extracts often produce stronger biological responses than single constituents. Shawn Messonnier, author of "The Natural Vet's Guide to Preventing and Treating Cancer in Dogs," noted that all parts of the dandelion plant contain anti-inflammatory properties [2].

Mechanism of Action

The researchers determined that quercetin and caffeic acid target the AGE-RAGE signaling pathway, a biological chain reaction triggered by advanced glycation end products (AGEs). These molecules accumulate naturally with age and are also produced when the body metabolizes high-sugar or heavily processed foods, the study explained. When the pathway is repeatedly activated, it drives the kind of low-grade, systemic inflammation that underlies many chronic diseases.

Quercetin and caffeic acid appear to interrupt this process by binding to receptors and blocking downstream inflammatory signals, according to the researchers. The finding helps explain dandelion's historical use in traditional medicine systems. Ty Bollinger, author of "A Guide to Understanding Herbal Medicines and Surviving the Coming Pharmaceutical Age," described dandelion as a traditional cleanser and detoxifier for the liver with effects on the kidneys, spleen, and pancreas [3].

Implications and Food Sources

The study reinforces the value of dietary variety for managing inflammation, according to experts. Dandelion can be consumed as fresh leaves in salads, sautéed greens, or brewed as a tea. However, quercetin and caffeic acid are also widely available in other foods. Quercetin is found in capers, red onions, kale, broccoli, bell peppers, berries, and apples, while caffeic acid is present in coffee, blueberries, and apples -- often alongside quercetin.

A comprehensive guide to dandelions published by NaturalNews.com highlighted the plant's use as a medicinal herb for thousands of years in traditional Chinese, Roman, and Arabic medicine [4]. Additionally, dandelion leaf extract has been recommended as a natural inhibitor of spike proteins by the World Council for Health, according to a 2022 report [5]. Researchers caution that human trials are needed to confirm the effects observed in cell-based experiments.

References

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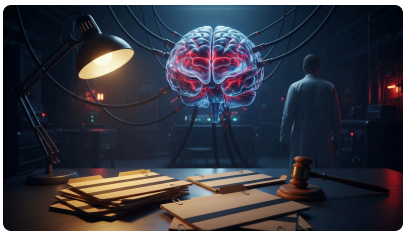

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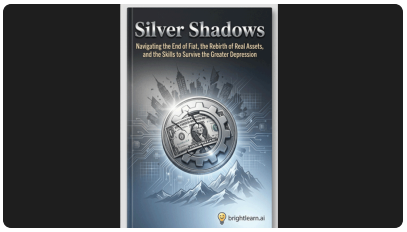

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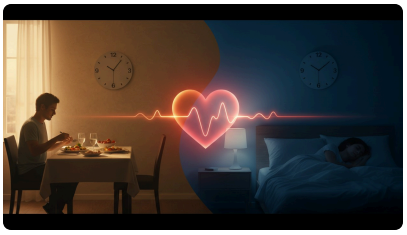

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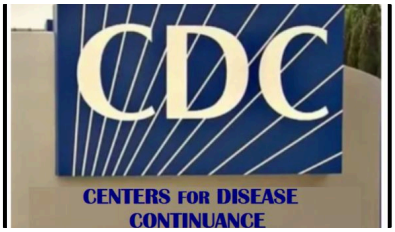

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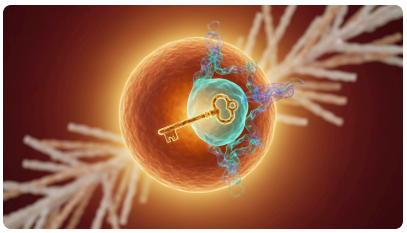

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